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ADDITION OF THREE NEW SPECIES OF *CHALCOLEPIS* CANDEZE (COLEOPTERA, ELATERIDAE: HEMIRRHIPINAE) TO THE INDIAN FAUNA¹

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(With twelve text-figures)

To the previously recorded three Indian species of genus *Chalcolepis* Candèze, three are added. Described and illustrated as new are *C. nigrimaculatus*, *C. truncatus* and *C. emarginatus*. A dichotomous key is provided for all Indian species of this genus.

INTRODUCTION

Erected by Candèze (1857), the genus *Chalcolepis* remained unreported from the Oriental region, till 1992, when Vats & Kashyap described three new species *C. pannus*, *C. rotundoextremus* and *C. kashyapi*, from India. Candèze established this genus with *C. luczoti* as its type species from Neotropical region. In the present text three more species are added from the Indian region. Holotypes will be submitted to Indian Agricultural Research Institute, Pusa National Collections, Division of Entomology, New Delhi.

This genus is based on a combination of some significant characters which include: Body covered with scales of different colours, with or without distinct patches; antennal segment 2 shorter than 3; elytra truncate at posterior extremities; tarsi furnished below with brushes of hairs; claw simple with setae at base; aedeagus longer than parameres, and parameres simple with or without subapical processes.

KEY TO INDIAN SPECIES OF GENUS *Chalcolepis* CANDEZE

1. Body covered with scales of three colours intermingled irregularly, with or without prominent patches 2
- Body covered with scales of two colours intermingled irregularly, with prominent patches 4
2. No distinct patches of scales present 3
- Distinct patches of black coloured scales present *nigrimaculatus* sp.nov.

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3. Mandibles dented; two depressions on either side of the middle of pronotum and a transverse ridge interrupted in middle on the posterior half present; posterior angles almost parallel; prosternal spine canaliculate between coxae; elytra rounded at extremities; last sternite of abdomen without any fossae *rotundoextremus* Vats & Kashyap
- Mandibles simple; pronotum without any depression and transverse ridge, but a pair of patches of black scales in the middle; posterior angles divergent; prosternal spine depressed between coxae; elytra truncated at extremities; last sternite of abdomen with two deep fossae posteriorly *kashyapi* Vats & Kashyap
4. Body covered with prominent patches of brownish and blackish scales; metabasitarsus shorter than following 2 joints combined as 6:7 *pammus* Vats & Kashyap
- Body covered with prominent patches of whitish and blackish scales; metabasitarsus equal to following 2 joints combined 5
5. Pronotum with a small median longitudinal line; posterior angles rounded; anterior margin of scutellum broadly emarginate; claw with a group of setae at base; head with dense, hexagonal punctation *emarginatus* sp. nov.
- Pronotum without any longitudinal line; posterior angles pointed; anterior margin of scutellum truncate; claw with a seta at base; head with scattered, rounded punctation *truncatus* sp. nov.

***Chalcolepis nigrimaculatus* sp. nov.**

(Figs. 1, 3, 6, 8, 11)

Description.-Colour: Body black. Antenna and legs fuscous. Measurements: Body length = 29 mm, width = 7.5 mm; head length = 2.25 mm, width = 2.75 mm; antenna = 6 mm, 2nd segment = 0.3 mm, 3rd segment = 0.5 mm, 4th segment = 0.6 mm, last segment = 0.62 mm; thorax length = 8 mm, width = 7.5 mm; elytra = 18 mm.

Structure: Body width more than 0.25 x its length. Head flat with broad medial longitudinal depression, broader than long as 11:9; antenna reaching the middle of pronotum, 3rd segment longer than 2nd as 5:3 but shorter than 4th as 5:6; mandibles simple; labrum entire. Pronotum convex, longer than broad as 6:5, with a transverse ridge on the middle posteriorly and two shallow foveae one on each end of the ridge, and with medial longitudinal carina except anterior and posterior $\frac{1}{4}$ (Fig. 1); posterior angles rounded, short, carinate, carinae small; lateral sides of prothorax almost parallel; prosternopleural suture concave, opened anteriorly; prosternal spine

rounded, straight with apex slightly declined, margined, abruptly narrowing at base (Fig. 6). Metasternum truncate between mesocoxae. Scutellum flat, longer than broad as 3:2, anterior margin with slight median notch, posterior margin arcuate (Fig. 8). Elytra convex, 2.25 x prothorax length, truncated at extremities, angles rounded, striae distinct. Claw simple with a seta at base (Fig. 11). Metabasitarsus longer than following 2 joints combined as 6:5.

Sculpture: Head with double, moderate, large, rounded punctation intermingled with dense fine rounded ones; pronotum with double, dense, small, hexagonal punctation intermingled with minute rounded ones; propleurae with double, dense, large, hexagonal punctation; prosternum with double, sparse, large, rounded punctation; elytral striae with deep, distinct, rounded punctation; interstriae with simple, dense, fine, rounded punctation.

Pubescence: Body covered with dense, scales of three colours; whitish yellow scales intermingles with brownish scales without distinct patches but blackish scales constitute distinct patches; a pair of elongated patches, one each on lateral side in the middle of pronotum (Fig. 1) and a pair of inverted 'C'-shaped patches one on each extreme lateral margin in the middle of elytra (Fig. 3).

Male genitalia: Male not found.

Material examined: Holotype: Female, Assam, Jatinga, 750 m, 25.5.1994. Paratype: 1 female, with same data as holotype.

Distribution: INDIA: Assam.

Diagnostic combinations: Body covered with scales of three colours which are irregularly intermingled with each other, and the presence of distinct patches of black coloured scales on pronotum and elytra, are the significant characters which distinctly separate *C. nigrimaculatus* from other Oriental species of this genus.

Etymology: Species name pertains to black spots present on elytra and prothorax.

Chalcolepis emarginatus sp. nov.

(Figs. 5, 10, 12)

Description: *Colour:* Body, black. Antenna and legs fuscous.

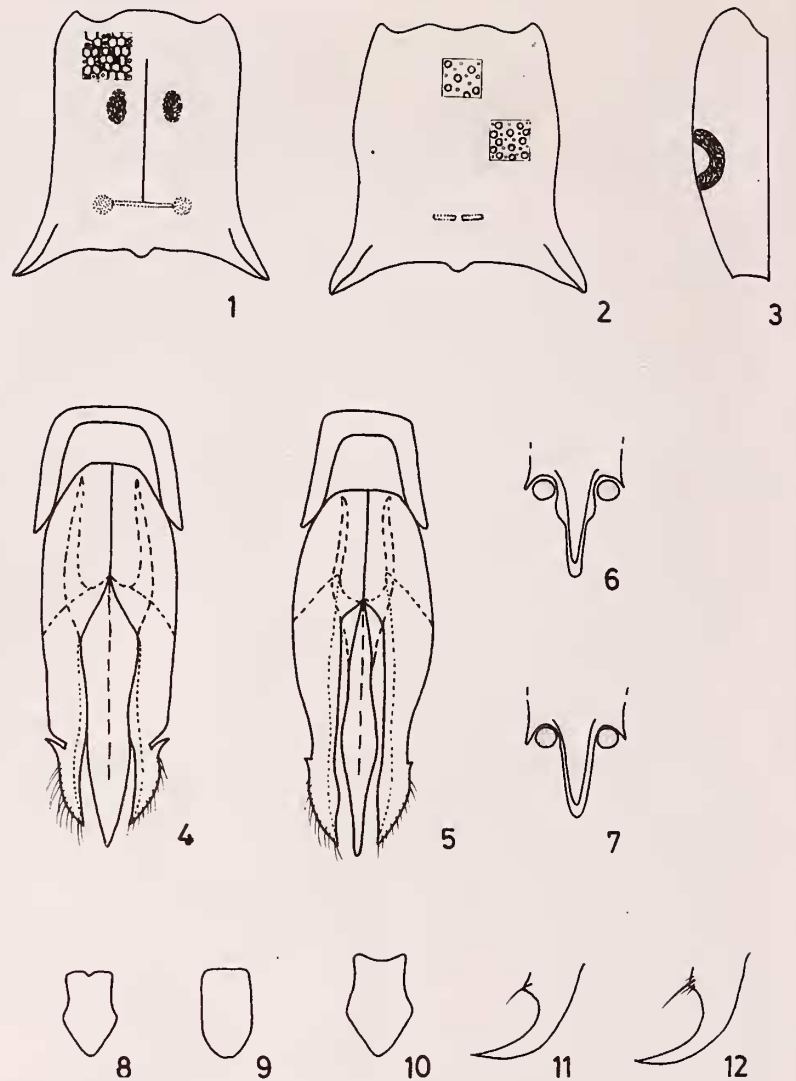
Measurements: Body length = 33 mm; width = 8.5 mm; head length = 3 mm; width = 3.25 mm; antenna = 7.5 mm; 2nd segment = 0.2 mm; 3rd segment = 0.5 mm; 4th segment = 0.6 mm; last segment = 0.75 mm; thorax length = 9 mm; width = 8.5 mm; elytra = 20.5 mm.

Structure: Body width more than 0.25 x its length. Head flat, with broad medial shallow depression, broader than long as 13:12; antenna extending beyond the middle of pronotum, 3rd segment longer than 2nd as 5:2, but shorter than 4th as 5:6; mandibles simple, labrum entire. Pronotum convex, longer than broad as 18:17, with a broken transverse ridge on the middle posteriorly and with a small median longitudinal line; posterior angles short, rounded, carinate, carinae small; lateral sides of prothorax subconvex; prosternopleural suture almost straight, opened anteriorly; prosternal spine rounded, straight with apex slightly declined, margined, gradually narrowing at base. Metasternum truncate between mesocoxae. Scutellum flat, longer than broad as 4:3, anterior margin broadly emarginate, posterior margin arcuate (Fig. 10). Elytra convex, 2.27 x prothorax length, truncated at extremities; striae distinct. Metabasitarsus equal to following 2 joints combined. Claws simple with a group of setae at base (Fig. 12).

Sculpture: Head with double, dense, small hexagonal punctation intermingled with dense, fine, rounded ones; pronotum with double, moderate, rounded punctation; propleurae with double, dense, large, rounded punctation; prosternum punctated like propleurae; elytral striae with simple, small, shallow, moderate punctation; interstriae with deep, distinct punctation intermingled with cross-striations.

Pubescence: Body covered with scales of two colours with distinct patches of whitish and blackish scales.

Male genitalia (Fig. 5): Phallobase with anterior margin truncate. Parameres with lateral sides



Figs. 1-2. Pronotum: 1. *Chalcolepis nigrimaculatus*, 2. *C. truncatus*; Fig. 3. Elytra of *C. nigrimaculatus*; Figs. 4-5. Male genitalia: 4. *C. truncatus*, 5. *C. emarginatus*; Figs. 6-7. Prosternal spine: 6. *C. nigrimaculatus*, 7. *C. truncatus*; Figs. 8-10. Scutellum: 8. *C. nigrimaculatus*, 9. *C. truncatus*, 10. *C. emarginatus*; Figs. 11-12. Tarsal claw: 11. *C. nigrimaculatus*, 12. *C. emarginatus*.

medially convex and abruptly narrowing posteriorly; subapical processes long, inner lateral margins convex, outer lateral margin convex with minute anterior spine, Aedeagus slightly longer than parameres, swollen in middle and gradually tapering posteriorly into rounded tip; furcae long, ending just before anterior margin of parameres.

Material examined: *Holotype* Male, Assam, Jatinga, 750 m, 15.9.1994. *Paratype* 1 male with same data as for holotype.

Distribution: INDIA: Assam.

Diagnostic combinations:- Characters

separating *C. emarginatus* from its allied species *C. truncatus* are discussed under the latter.

Etymology: Species name pertains to emarginate anterior margin of scutellum.

***Chalcolepis truncatus* sp.nov.**

(Figs. 2, 4, 7, 9)

Description: *Colour:* Body black. Antenna and legs fuscous.

Measurements: Body length = 27.5 mm, width = 7 mm; head length = 2.5 mm, width = 2.5 mm; antenna = 6.5 mm, 2nd segment = 0.2 mm, 3rd segment = 0.4 mm, 4th segment = 0.7 mm, last segment = 0.8 mm; thorax length = 7.5 mm, width = 7 mm; elytra = 17.5 mm.

Structure: Body width more than 0.25 x its length. Head flat, with broad medial longitudinal concavity, inclined, as long as broad; antenna extending beyond the middle of pronotum; 3rd segment longer than 2nd as 4:2, but shorter than 4th as 4:7; mandibles simple; labrum entire. Pronotum convex with a broken transverse ridge on the middle posteriorly (Fig. 2), longer than broad as 15:14; posterior angles short, pointed, carinate, carinae very short; lateral sides of prothorax subconvex; prosternopleural suture straight, opened anteriorly; prosternal spine rounded, straight with apex slightly declined, margined, gradually narrowing at base (Fig. 7). Metasternum truncate between mesocoxae. Scutellum flat, longer than broad as 5:4, anterior margin truncate, posterior margin arcuate (Fig. 9). Elytra convex, 2.33 x prothorax length, truncated at extremities, angles pointed; striae deep, distinct. Claw simple, with a seta at base. Metabasitarsus equal to following 2 joints combined.

Sculpture: Head with double, scattered, small, rounded punctation intermingled with dense, fine,

rounded ones; pronotum with double, sparse in middle but moderate on rest of surface, rounded punctation intermingled with minute, rounded punctation (Fig. 2); propleurae with simple, scattered, large, rounded punctation; prosternum punctated like propleurae; elytral striae with simple, deep, distinct, squarish punctation; interstriae with dense, fine punctation intermingled with cross-striations.

Pubescence: Body covered with scales of two colours with prominent patches of whitish and blackish scales.

Male genitalia: Fig. 4. Phallobase with anterior margin truncate. Parameres with lateral sides almost parallel; subapical processes long, inner lateral margins concave, outer lateral margin convex with long anterior spine. Aedeagus slightly longer than parameres, almost gradually narrowing into pointed tip posteriorly except for broad medial constriction; furcae long, ending just before anterior margin of parameres.

Material examined: *Holotype* Male, Assam, Jatinga, 750 m, 20.9.1993.

Distribution: INDIA: Assam.

Diagnostic combinations: A combination of some significant characters distinguishes *C. truncatus* from its allied species *C. emarginatus* which include: posterior angles pointed (rounded in *emarginatus*); anterior margin of scutellum truncate (emarginate in *emarginatus*); claw with a seta at base (a group of setae in *emarginatus*); head with scattered, rounded punctation (dense, hexagonal in *emarginatus*) and median longitudinal line on pronotum absent (present in *emarginatus*). These characters collectively impart it the status of species novum.

Etymology: Species name pertains to truncate anterior margin of scutellum.

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